REMARKS

STATUS OF CLAIMS:

Claims 1-24 and 26-31 are pending in the application. Claims 1-31 are rejected. Claim 25 is hereby cancelled.

PRELIMINARY MATTERS:

A copy of U.S. Patent No. 5,805,245 accompanied the Office Action. However, the Examiner did not cite this reference. Thus, Applicants respectfully request the Examiner to cite this reference in a Form PTO-892 if he intends for it to be included with the present case.

With regard to the drawings, Applicants submit concurrently herewith proposed corrections to Figures 4A, 4B and 4C, to correct typographical errors. Also, to conform the specification to the drawings, Applicants make minor amendments to the specification.

35 U.S.C. §112:

The Examiner rejects claims 1, 16, 21 and 24 under 35 U.S.C. §112, second paragraph, as being indefinite. In particular, the Examiner still asserts that the term "unrecognizable structure" is used in a way that is contrary to an accepted meaning in the art. The Examiner notes that this term is normally referred to in the art as being an "unresolvable structure."

In order to overcome the 35 U.S.C. §112, second paragraph rejection, Applicants substitute the term "unresolvable" for "unrecognizable" in claims 1, 16, 21 and 24, and respectfully request withdrawal of the rejection.

35 U.S.C. §103:

Claims 1, 2, 4, 16, 18 and 21-31 are rejected under 35 U.S.C. §103(a) as being unpatentable over Watanabe (previously cited) in view of Valliath et al. (U.S. Patent No. 5,629,785 [hereinafter "Valliath"]).

The Examiner acknowledges that Watanabe does not disclose that "portions of the passing areas and a portion of the low passing are disposed past the spheres in a passing direction of the collimated light" (see lines 1-3, page 4 of the Office Action).[1] Thus, the Examiner newly applies Valliath for an alleged disclosure of a liquid crystal display device having glass microspheres 30 disposed in a light absorbing matrix (i.e., binder 32 in Figure 2) that forms passing areas and low passing areas. The Examiner further asserts that portions of the passing areas and the low passing areas are disposed past the spheres in a passing direction of the light.

Claims 1, 16, 21 and 24

In regard to claims 1, 16 and 21, the passing areas and low passing area are provided in a same plane and a binder is adhered to at least a circumferential portion of said spheres, where the circumferential portion is part of a half of said sphere which faces said plane. Similarly, in claim 24, a binder is adhered to at least a circumferential portion of the spheres, where the circumferential portion is part of a half of said spheres where the collimated light exits. Further, in claim 24, a layer of material having intermittent areas where light transmissivity is greater than other

[1] These features were added via the Amendment filed October 24, 2002.

areas in the layer, and where the layer is disposed past the spheres in a passing direction of the collimated light, is provided.

The combination of Watanabe and Valliath fails to teach the features of claims 1, 16, 21 and 24 because they fail to disclose the claimed binder and its physical location, along with the other features of the claims. With particular regard to claims 1, 16 and 21, the binder is recited as being adhered to at least a circumferential portion of said spheres, where the circumferential portion is a part of a half of the spheres which faces a plane in which the passing areas and low passing area are provided. Thus, for example, and not by limitation, as shown in Figures 2B and 2C, a binder 25 is provided on a circumferential portion of the spheres which faces a plane in which the passing areas and the low passing area are provided.

With regard to claim 24, the binder is recited as being on a circumferential portion of said spheres where collimated light exits. Also recited is a layer of material having intermittent areas where light transmissivity is greater than other areas in said layer, and the layer is disposed past the spheres in a passing direction of the collimated light. Thus, the applied references fail to teach or suggest the claimed physical elements and the positioning of these elements, as recited in claims 1, 16, 21 and 24.

Claim 25 is cancelled because its features are incorporated into claim 24. Claims 2 and 22 are amended to conform to the changes made to independent claims 1 and 21.

Claims 3-15 and 17-20

Applicants point out that the present invention is basically characterized in that, when the passing areas for light and the low-passing area (black matrix) of the light diffusing plate are formed, a black matrix is formed with a material for forming the passing areas for light and a material for forming the low-passing area. These are applied concurrently with each other, unlike the colored layer disclosed in Watanabe that is formed using a binder colored by mixing in a pigment or dye with a specified color. The black matrix of the present invention is formed particularly by a self-alignment process using a light-sensitive material or a light absorptive thermal ablative material; i.e., by using a light-sensitive material or a light absorptive thermal ablative material and carrying out development.

Thus, the material for forming the black matrix of the light diffusing plate of the present invention is not a binder colored by mixing in a pigment or dye with a specified color, as is the case with the colored layer 13 having functions such as adhesion, cohesion or the like of Watanabe, or the light-absorbing matrix 32 of Valliath. Instead, the material for forming the passing areas for light and the material for forming the low-passing area are applied concurrently because of the claimed light-sensitive material and a light absorptive thermal ablative material. According to the present invention, the black matrix is created by carrying out exposure so as to form the passing areas for light and the low-passing area.

Applicants respectfully submit that the light-sensitive material and the light absorptive thermal ablative material, or layers of such materials, used in the present invention are distinguished from either the colored layer 13 (having functions such as adhesion, cohesion or the like of Watanabe) and the light-absorbing matrix 32 of Valliath.

Claims 4 and 18

Claims 4 and 18 describe a thermal ablative material that has an area that is illuminated by a nearly collimated light and is "removed" by thermal energy by means of the nearly collimated light.

Applicants thank the Examiner for the courtesies extended to Applicants' representative during a teleconference on February 4, 2003, during which these features were discussed, with the undersigned attorney asserting that the applied references do not disclose an area that is removed by thermal energy by means of a nearly collimated light. Claims 4 and 18 are hereby amended to further define the area that is removed. In particular, claims 4 and 18 are amended to define that the layer of thermal ablative material has intermittent areas where said thermal ablative material has been removed. This amendment further defines the use of a thermal ablative material and the removed areas. Neither Watanabe nor Valliath teaches or suggests a thermal ablative material. Further, these references do not teach or suggest a thermal ablative material wherein portions have been removed. Thus, the applied references fail to teach or suggest all of the features recited in claims 4 and 8.

Consequently, Applicants respectfully submit that claims 1, 4, 16, 18, 21 and 24 are patentable over Watanabe in view of Valliath, and the rejection of these claims under 35 U.S.C. §103(a) should be withdrawn. Further, dependent claims 2, 22, 23, and 25-31 are also patentable over Watanabe in view of Valliath, at least by virtue of these claims respectively depending on independent claims 1, 4, 16, 18, 21 and 24, in addition to their individual recitations.

Claims 3, 5-15, 17, 19 and 20

Claims 3, 5-15, 17, 19 and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Watanabe and Valliath, and further in view of Yamaguchi Jun et al. (hereinafter "Jun").

The Examiner did not supply a particular reference number associated with Jun. Accordingly, during the above-described teleconference, the undersigned attorney inquired as to which particular Jun reference the Examiner is applying. The Examiner indicated that he is applying JP 03087827 A. Accordingly, Applicants respectfully traverse the rejection of these claims in view of the following remarks.

To establish a *prima facie* case of obviousness, it must be shown that the prior art references, when combined, teach or suggest all of the claimed limitations. Further, it must also be established, among other things, that there was some suggestion or motivation, in either the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine the references' teachings. Applicants respectfully submit that at least both of these fundamental aspects of a *prima facie* case of obviousness have not been met.

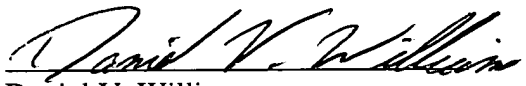
Jun discloses layers of a photosensitive and thermosensitive material that contain an electron acceptive and polymerizable vinyl monomer and a photopolymn. There is no motivation to combine the teachings of Jun with that of Watanabe or Valliath. Watanabe discusses the use of a color material for element member 13. It is described in Watanabe that the colored layer 13 can be formed of a material obtained by mixing a plurality of pigments or dyes having different color distributions (see column 13, lines 17-22). Jun discloses that a black color layer 32 is used (see column 3, lines 27-30). None of these references teaches, suggests or would have motivated one skilled in the art to use a light-sensitive thermal developable material, as is respectively described in claims 3, 5, 6, 17, 19 and 20.

The use of a light-sensitive thermal developable material requires certain aspects and procedures that are not taught or suggested by either of Watanabe or Valliath. Applicants respectfully submit that any attempt to combine the references' teachings impermissibly relies on hindsight in an attempt to reconstruct Applicants' invention by asserting that one skilled in the art could provide the elements of the claims at issue. However, it is the Applicants who have discovered the particularly claimed elements, and the way in which they are combined. Thus, the Examiner's reasoning for holding obvious the claimed invention in view of the prior art appears to be based not on knowledge generally available from the prior art, but rather on Applicants' own disclosure. That is, Applicants respectfully submit that the Examiner utilized the disclosure from Applicants' specification and has impermissibly relied on that disclosure in rejecting Applicants' claims.

In view of the preceding amendments and remarks, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue that the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the local telephone number listed below.

The USPTO is directed and authorized to charge all required fees (except the Issue Fee and/or the Publication Fee) to our Deposit Account No. 19-4880. Please also credit any over-payment to said Deposit Account.

Respectfully submitted,



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Date: April 28, 2003

APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION:

The specification is changed as follows:

Page 30, first full paragraph:

For this reason, when the diffusion plate 16d shown in FIG. 3A or the diffusion plate 16e shown in FIG. 4A is produced, the color forming material layer (light-sensitive material layer) 24 itself or its upper layer (a layer closer to an exposure light source), for example, the binder [25] 30, is formed so as to become a layer which absorbs exposure light at a medium degree, namely, has medium density on the exposure light. In order to form the color forming material layer 24 itself or the binder [25] 30 of its upper layer as a layer having such medium density, the material itself forming the color forming material layer 24 or the binder [25] 30 itself of the upper layer of the color forming material layer 24 which has medium density may be used but an absorption agent may be added to the color forming material layer 24 or the binder [25] 30 of its upper layer so that each of them absorbs the exposure light at a medium degree.

Pages 30-31, bridging paragraph:

By doing such [way], an area (space) spaced among adjacent beads 20 (for example, the color forming material layer 24 shown in FIG. 3A or the binder [25] 30 shown in FIG. 4A) has medium density and is thick so that the exposure light is attenuated and does not sufficiently

expose the light-sensitive material of the color forming material layer 24 which is, then, after developed, to form a color, thereby shielding a visible light. On the other hand, since the coloring layer 24 shown in FIG. 3A which is the light absorptive layer or the binder [25] 30 shown in FIG. 4A is thin, light passed through the beads 20 exposes the light-sensitive material of the color forming material layer 24 in its optical path which, even after developed, does not form the color, as well as, since the light absorptive layer is thin, light transmissivity which is the desired function is not impaired.

IN THE CLAIMS:

Claim 25 is cancelled without prejudice and/or disclaimer.

The claims are amended as follows:

1. (Twice Amended) A light diffusing plate comprising:

an ~~unrecognizable~~ unresolvable structure which has an optical refractive power~~;~~ and includes light transmitting spheres;

individual passing areas through which a collimated light incident from a side of the ~~unrecognizable~~ unresolvable structure passes; ~~and~~

a low-passing area other than said passing areas, which has relatively low light transmissivity compared with the passing areas, said passing areas and low-passing area being provided in a same plane; and

~~wherein materials of said passing areas and low-passing area are applied simultaneously;~~ ~~and~~

a binder adhered to at least a circumferential portion of said spheres, said circumferential portion is part of a half of said spheres which faces said plane,

wherein said individual passing areas respectively correspond to said light transmitting spheres and are separated by said low-passing area, such that portions of said passing areas and a portion of said low-passing area are disposed past said spheres in a passing direction of the collimated light.

2. (Twice Amended) The light diffusing plate according to claim 1, wherein the light diffusing plate comprises a light transmitting support; and

a diffusing layer formed on said light transmitting support;

wherein said light transmitting spheres are fixed to the light transmitting support with ~~a~~ said binder, which is light absorptive binder ~~which~~ and constitutes a portion of said low-passing area.

4. (Twice Amended) A light diffusing plate comprising:

a light transmitting support;

a diffusing layer having light transmitting spheres; and

a thermal ablative layer ~~formed~~ between said light transmitting support and the diffusing layer;

wherein ~~the~~ said thermal ablative layer contains a light absorptive thermal ablative material;

wherein said layer of thermal ablative material has intermittent areas where said thermal ablative material has been removed ~~an area which is illuminated by a nearly collimated light incident from a side of said diffusing layer and is removed by thermal energy by means of the nearly collimated light~~; and

wherein said ~~removed area corresponds~~ intermittent areas where said thermal ablative material has been removed correspond to said light transmitting spheres and ~~is~~ are separated by non-removed areas of said thermal ablative material, such that a portion of said removed area and portions of said non-removed areas are disposed past said spheres in a direction of the collimated light.

16. (Twice Amended) A display apparatus comprising:

a liquid crystal display panel;

a backlight unit which forces a collimated light to be incident on said liquid crystal display panel; and

a light diffusing plate which is located in an opposite side of said backlight unit against said liquid crystal display panel~~;~~, ~~wherein~~ said light diffusing plate comprises an ~~unrecognizable~~ unresolvable structure which has an optical refractive power and includes light transmitting spheres, passing areas through which a collimated light incident from a side of the ~~unrecognizable~~ unresolvable structure passes, and a low-passing area other than said passing areas, which has relatively low light transmissivity compared with the passing areas, said passing areas and low-passing area being provided in a same plane; and

~~wherein materials of said passing areas and low-passing area are applied simultaneously~~ a binder adhered to at least a circumferential portion of said spheres, said circumferential portion is part of a half of said spheres which faces said plane.~~; and~~

wherein said passing areas correspond to said structure having optical refractive power and are separated from each other by said low-passing area, such that portions of said passing areas and a portion of said low-passing area are disposed past said structure having optical refractive power in a passing direction of the collimated light.

18. (Twice Amended) A display apparatus comprising:

a liquid crystal display panel;

a backlight unit which forces a collimated light to be incident on said liquid crystal display panel; and

a light diffusing plate which is located in an opposite side of said backlight unit against said liquid crystal display panel;

wherein said light diffusing plate comprises a light transmitting support, a diffusing layer having light transmitting spheres, and a thermal ablative layer formed between said light transmitting support and the diffusing layer;

wherein ~~the~~ said thermal ablative layer contains a light absorptive thermal ablative material;

wherein said thermal ablative layer ~~material~~ has intermittent areas where said thermal ablative material has been removed ~~an area which is illuminated by a nearly collimated light incident from a side of said diffusing layer and is removed by thermal energy by means of the nearly collimated light~~; and

wherein said ~~removed area corresponds~~ intermittent areas where said thermal ablative material has been removed correspond to said light transmitting spheres and ~~is~~ are separated by non-removed areas of said thermal ablative material, such that a portion of said removed area and portions of said non-removed areas are disposed past said spheres in a direction of the collimated light.

21. (Twice Amended) An image display apparatus comprising:

an image display device having a matrix structure; and

a light diffusing plate comprising:

an ~~unrecognizable~~ unresolvable structure which has an optical refractive power and includes light transmitting spheres;

individual passing areas through which a collimated light incident from a side of the ~~unrecognizable~~ unresolvable structure passes; and

a low-passing area other than said passing areas, which has relatively low light transmissivity compared with the passing areas, said passing areas and low-passing area being provided in a same plane; and

~~wherein materials of said passing areas and low-passing area are applied simultaneously,~~

a binder adhered to at least a circumferential portion of said spheres, said circumferential portion is part of a half of said spheres which faces said plane,

wherein said light diffusing plate is provided on a viewing side of a display screen of said image display device, and

wherein said passing areas correspond to said structure having optical refractive power and are separated from each other by said low-passing area, such that portions of said passing areas and a portion of said low-passing area are disposed past said structure having optical refractive power in a passing direction of the collimated light.

22. (Amended) The image display apparatus according to claim 21, wherein said light diffusing plate comprises a light transmitting support and a diffusing layer formed by ~~fixing~~ coupling light transmitting spheres with ~~a~~ said binder ~~on~~ to the light transmitting support.

24. (Amended) An image display apparatus comprising:

an image display device having a matrix structure; ~~and~~

a light transmitting support;

a light diffusing plate comprising an ~~unrecognizable~~ unresolvable structure having light transmitting spheres through which collimated light passes, and which ~~has an~~ have optical refractive power;

a binder which fixes said light transmitting spheres in place, and said binder is adhered to at least a circumferential portion of said spheres, said circumferential portion is part of a half of said spheres where the collimated light exits; and